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Study on Suggestions of Developing Recycle Economy in Zhejiang

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Abstract

Based on the theories about Recycle Economy, the paper analyzed the necessity, the status, and the problems of developing Recycle Economy in Zhejiang province. And the suggestions of developing Recycle Economy in Zhejiang province were discussed in law, economic policy and ecological civilization.

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1. Introduction of Recycle Economy

Based on the waste of natural resources and the damage of environment caused by the traditional linear economy, Kenneth E. Boulding put forward the concept of Recycle Economy in 1966 for the first time^[1]; Barry commoner thought people should obey the ecological rules in the producing technical means and should establish the closed system for reducing the pollution and damage to the natural system^[2]; David Pearce and Kerry Turner pointed out that the aim of Recycle Economy was to build resource management rules of sustainable development, and to become the economic system to an integral part of the ecological system^[3]; Scholars in China discussed Recycle Economics theoretically in the relationship of human beings and nature^[4], the producing technical paradigm^[5] and the economic pattern^[6]. In practice, Since 1990s, US, EU, Japan and other developed countries and regions began to explore Recycle Economy by promoting Cleaning Production, building ecological industrial parks and reusing the waste, and tried to form the Recycle Society through founding the laws to promote its development. China put Recycle

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Economy in the Scientific Outlook on Development for the harmonious development of environment and economy. As a new economic model, Recycle Economy has already become an important guidance of the national environmental and developing policies. Recycle Economy is the specific form of realizing sustainable development which can solve the excessive consumption of resources and the harmful pollution of environment. Recycle Economy obey the “3R” rules(reduce, reuse, recycle), generally include three levels: promoting Cleaning Production on the enterprise’s level, building ecological industrial park on the regional level and developing intravenous industry on the social level.

2. Necessity for the Development of Recycle Economy in Zhejiang Province

Since reform and opening-up in China, Zhejiang inventively made market reform, vigorously developed the economy with regional characteristics, and become an open economy with modern industry mainly from a relatively closed economy with traditional agriculture mainly. And now Zhejiang is in the period changing per-capita GDP from 5000 US dollars to 10,000 US dollars, which is the crucial period changing from the medium developed economy to the developed economy, and has the inner request of economic transformation and upgrading. The international and domestic environment of Zhejiang Province’s development is greatly changing and its sustainable development also faces new challenges, which include the advance in price of energy and raw material, the shortage of constructional land, the control of Energy-saving and Emission-reduction, the shortage of resources and the pollution of environment. The reason is that the mode of Zhejiang’s economic development is extensive like using “green hill and water” change “Golden and silver hill”.

Firstly, the economic and social development made brilliant achievements, but the model is still resource-based. Although Zhejiang Province’s achievements in economic development attracted worldwide attention, it mainly depended on the consumption of resources, and the speed of the resource consumption was higher than that of the economic growth. In addition, most industries are at the bottom of the global value chain, “smiling curve”, and the industrial structure is irrational. The economic growth that depend on increasing material inputs would not only lead to economic unsustainable growth, but also result in shortage of resources, destruction of ecology and pollution of environment.

Secondly, natural resources are relatively scarce, and the sustainable development is facing challenges. For long time, Zhejiang Province is a very poor province in per-capita resources, especially in minerals and energy. With the increasing population, the per-capita resources will become less and less. However, what coexists with the shortage of resources is the low using efficiency of energy. So, both the relative shortage of natural resources and the high consumption of energy make the sustainable development of Zhejiang Province’s society and economy face challenges.

Thirdly, the ecological environment is very fragile, and ecological unbalance is increasingly prominent. With the developing of society and economy and the growth of population in Zhejiang province, the pollution of environment is worsening and the situation of ecology is deteriorating. Especially in water pollution, large quantity of industrial wastewater and domestic sewage without any treatment are directly exhausted into rivers and lakes, leading to the water’s eutrophication. And the annual outbreak of blue algae in Taihu is the obvious example of environmental degradation.

In conclusion, if still depending on high consumption of energy and materials to achieve rapid economic growth in the future, the developing space will become smaller and smaller. In order to pursue the long stable development of economy and society, Zhejiang Province must promote to develop Recycle Economy, change the traditional extensive mode of development, which is at the expense of destroying the environment and wasting resources, to the intensive and sustainable mode of development which means Zhejiang will not only have “Golden and silver hill”, but also “green hill and water”.

3. Status and Problems of Recycle Economy in Zhejiang Province

3.1. Status of Recycle Economy in Zhejiang Province

Based on the objective bottleneck of resources and the subjective request of economic development, Zhejiang Province has proposed “building ecological province”, actively carried out environmental remediation “‘811’ action”, vigorously implemented Recycle Economy “‘991’ Project”, and comprehensively promoted Energy-saving and Emission-reduction. Especially in characteristic industrial clusters, some value chains of ecological industries were established and the effect of using resources in the industrial cluster was improved finally. Representative industrial chains of Recycle Economy are follows:

In Yuhuan County in Zhejiang, recycling enterprises made various types of rubbish to the raw materials of major pillar industries of this county, like plumbing valves, automobile and motorcycle accessories, and eyewear manufacturer.

As the largest manufacturing base of home appliances in China, Cixi City and Yuyao City in Ningbo City formatted the industrial chain of “waste materials - accessories - home appliances” through reusing scrap metal and plastic as the breakthrough point.

The manufactory base of button in Qiaotou Town, Yongjia County, Wenzhou City used plastics reconstructive technology and make a new polymer by solid rubbish from the course of button production, which had more cost advantages as the raw materials in manufacturing railway sleeper, artificial marble, agate button, car and motorcycle shell, etc..

Haining City is a famous leather base. There is 120 tons of sludge per day which have sulfide, chrome, plant nutrients and other harmful substances. If that sludge is simple buried, the harmful substances will penetrate into soil and groundwater will be polluted. Through acting the research project which could make leather sludge harmless and reusable, the problem of pollution in tanning process was effectively solved. The course included separating waste water, recycling chromium, using the technology of microorganisms in sludge detoxification, and then changing “clean” sludge into organic fertilizers.

3.2. Problems of Recycle Economy in Zhejiang Province

3.1.1 Absence of motivating mechanisms for the development of Recycle Economy

There are many small and medium enterprises in Zhejiang Province, most of them have no condition of economy, technology and scale to promote Cleaning Production, and have on active power at the same time. The current means of environmental protection are still dominated by the administrative interference from government. In the cause of enforcement, enterprises have no pressure protect environment because the strength of supervision for their pollution is not enough. And enterprises have no economic motility to promote Cleaning Production and reduce costs, because the price of resources and the pollution discharge fees are low relatively.

3.1.2 Technological bottlenecks for the development of Recycle Economy

The development of Recycle Economy requires a corresponding vector of green technologies, mainly including technologies for controlling pollution, technologies for recycling and reusing the waste, technologies for cleaning production, technologies for linking industries, and a large number of informational management and decisional support technologies. At present, many technical problems have not yet been broken through, or many technologies are lack of fitness economically, for example, technologies for linking industries can not resolve effectively the rigid constraints in industrial system. The scarce of the technical vector have become the practical impede for Recycle Economy.

3.1.3 Weakness of industrial base for the development of Recycle Economy

Establishing the symbiotic and collaborate relationships among enterprises and building the chain of recycling industries requires that enterprise groups are big enough and the enterprises on the top of ecological nets are strong enough, too. Although the development of industrial clusters in Zhejiang Province is in the front rank of China, the enterprises are small-scale mostly and the industrial clusters are low-level. For scarcity of powerful and large-scale enterprises as the core, the construction of eco-industrial system is lack of infrastructural base.

4. Suggestions about the Development of Recycle Economy in Zhejiang Province

In the course of the development of Recycle economy in Zhejiang Province, there are three prominent problems including absence of motivating mechanisms, scarcity of technical vector and weakness of industrial base. The development of technical vector depends on the technological innovation from the scientific research institutions and enterprises, and the construction of industrial base depends on the original strength in the area, the guide of the local government and the choice of enterprises own. Therefore, the most direct and most important method to promote the development of Recycle Economy is to establish an incentive mechanism for interests and long-term mechanism for protection.

4.1. Improve the Relevant Laws and Regulations, and Strengthen the Enforcement

A Laws and regulations is a indispensable fulcrum to protect the development of Recycle Economy. Now, China has promulgated “the Law for Protecting Environment”, “the Law for Preventing Solid Waste Pollution”, “the Law for Promoting the Cleaning Production” and so on. And Zhejiang Province has also made many relevant laws and regulations.^[7] In order to constitute the system of laws and regulations to promote the development of Recycle Economy in Zhejiang Province, local rules and regulations with its own characteristics should be made according to the request of Recycle Economy and the existing laws and regulations. On the other hand, the enforcement of laws and regulations should be strengthened, and the implement system and the support system of that should be established.

4.2. Apply Economic Incentive Policies, and Promote the Implementation

Economic incentive measures should be applied fully, which join the ecological elements to the economic system to make the external costs internal. The effective policy system of Recycle Economy should include price, tax, fiscal, and finance mechanisms, and regional developing policies adapted to Zhejiang’s characteristics.

Firstly, a strict access system for industry should be established by the government in Zhejiang. Enterprises should be forbidden to go into certain industries if they couldn’t reach thresholds in the methods, scales, abilities and levels of using resources and protecting environment.

Secondly, in order to encourage enterprises to develop the cleaning production and make the recycling R&D, special categories of taxes, policies of tax cut and special funds should be used.

Thirdly, the price system should be optimized and the trading system should be improved by fully using market mechanisms. Government should make policies of supportive price and protective price to change the phenomenon that “products are high-cost, raw materials are low-cost, and resources are no cost”. And the deposit refund system and the emission trading system should be promoted too.

Finally, when making regional development policies, government should consider Zhejiang’s population, resources and environment, and make a reasonable direction of resources’ development and utilization. For example, Chunan City is an ecologically significant area in Zhejiang because it is a water

head area. The policies for Chunan City's development should be focus on the environmental protection instead of economic growth.

4.3. Build Ecological Civilization, and Construct the Social Foundation for Recycle Economy

The ecological civilization can advocate the harmonious relationship between human beings and nature. If the Government, the public, the enterprises accept the idea of ecological civilization, they will consider the integrated benefits of economy, society and environment instead of that of pure economy. So, Building ecological civilization is the important task to develop Recycle Economy and realize the harmonious and sustainable development in Zhejiang.

Firstly, the government should fundamentally change the cognition of the relationship between human being and the environment based on the traditional linear economy, and change the evaluation system of government cadres from GDP's growth to the comprehensive standard with economic development, social progress and ecological optimization.

Secondly, through education, media and other various forms and means, the basic idea of the harmonious relationship between human beings and nature should be spread in public. people should know the methods how to promote the development of Recycle Economy, such as buying goods signed with "recyclable", reusing papers and water, refuse sorting and so on.

Finally, enterprise behaviors are influenced by the government and consumers in market. As the moral base of government and consumers, the ecological civilization will influence the choice of enterprise. On the other hand, enterprises will pay more attention to the responsibility of "the social citizen", and will join the construction of ecological industries more positively.

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